and studied cyclones and anticyclones for upward of 60 years. Many things are known as to their movement and the relation of that movement to the weather a few days in advance; but just how and why they come into being and follow this course or that course or quickly cease to exist is one of the unsolved problems of the meteorologist. When these pressure formations fail of development in the usual number, or when they lack in the essential characteristics of form, continuity, and speed of travel high temperature and sometimes, but not always, widespread drought occurs; in other words "stagnation" or the breaking down of the secondary circulation is the fundamental fact that furnishes the keynote to the abnormality. Why it should stagnate or break down we do not know. Reeder (this REVIEW 47:711–715) associates droughts and hot weather with the movement of cirrus clouds from the east, or in other words the currents in the cirrus level are reversed for the time being.

NOTES, ABSTRACTS, AND REVIEWS

Beitrag zur Langfrist-Wettervorhersage. By F. B. Groissmayr. Ann. Hydrogr. Berlin, 1928, pp. 287–293, 310–317[1]—The main interest of this pair of papers is the influence of Charleston rainfall on world weather, and I have prepared a note which follows in criticism. The following are some of the coefficients which Professor Groissmayr gets with Charleston rainfall: +0.64 with Charleston rain next year, +0.61 with the Nile two years later; −0.66 with Azores-Iceland pressure December to February two and one-half years later, in each case based on about 50 years of data. He also connects the autumn temperature of the Eastern United States with Argentine pressure in May preceding.

Note on Charleston rainfall and its relation to world weather.—In view of the surprisingly large coefficients obtained by Professor Groissmayr with a single rain gage at Charleston it seemed advisable to try whether the results would be equally shown by the rainfall indicated by the rain gages of the neighborhood. From the Summaries of Climatological Data by Sections [2] I selected a number of such stations and correlated their rainfall with the Nile two years later as follows: Hatteras 0.42, Pinopolis 0.24, Savannah 0.36, Wilmington 0.40; further, the mean of the seven stations—Jacksonville, Savannah, Augusta, Southport, Wilmington, Charlotte, and Pinopolis gave the coefficient 0.42 with 50 years of data. It may be concluded, therefore, that the relationship 0.60 with Charleston is fictitiously big.

Another test may be applied by extending the data still further back and a graphical comparison of the period 1834–1870 does not show a particularly close relationship.

It is also of interest to correlate with the Nile at intervals other than that of two years chosen by Professor Groissmayr. With Carolina rainfall and the Nile of the same year the coefficient is 0.20, with the Nile one year later 0.34, two years later 0.42, three years later 0.42, and four years later 0.28, so that there is a good deal of persistence probably due to slow changes common to both factors.

The above tests were made at the suggestion of Sir Gilbert Walker.

E. W. Bliss.

Maximum precipitation in short periods of time,[3] *by Charles D. Reed (Author's Abstract).*—Records of the greatest precipitation in short periods of time are obtained by the United States Weather Bureau with automatic recording rain gages for the purpose of assisting architects in planning the drainage of flat roofs and engineers in designing sewers and other drainage.

The greatest rainfall in five minutes known to the Weather Bureau, in Iowa, is 0.80 inch at Dubuque. Dubuque also holds the record for the greatest amount in 30 minutes and 2 hours, while Sioux City holds the record for 10 minutes, 15 minutes, and 1 hour. Records for seven stations are available. The most frequent intensity at Des Moines for a 5-minute period is between 0.30 and 0.40 inch. There are 14 years with such maxima out of 33. As the intensity of rainfall decreases the frequency increases.

Meteorological Observations of the First Shackleton (Nimrod) Expedition, by Dr. Edward Kidson.—The first Shackleton Expedition, 1907–1909, established its base at Cape Royds on the west side of Ross Island. The geographic coordinates of the position are approximately latitude 77° 34′ S., longitude 166° 9′ E. This position will be recognized as the gateway used by the British and also by Amundsen through which access to the South Pole was sought. For one reason or another the meteorological observations made by this expedition were not promptly printed. On the initiative of the Australian National Research Council, the Commonwealth Meteorologist, and others, steps were taken to print the observations; accordingly, a small committee was formed, which in conjunction with Doctor Kidson prepared the volume under review.

Antarctica continues to be the goal of geographic exploration, notwithstanding the large amount of information thereon that has been accumulated since the beginning of the twentieth century.

The return of the American expedition of Admiral Byrd, as this note is being written, lends additional interest to the subject. The Ross Sea area in which the meteorological observations included in the work under review were made, is best known by the very comprehensive treatment of its meteorology by Dr. George C. Simpson, the meteorologist of the last Scott Expedition and now Director of the British Meteorological Service.[4]

In closing, I can do no better than to quote Doctor Kidson's remarks on page 120 of the work.[5]

General.—There is no portion of the earth comparable with the Antarctic in size of which our knowledge of the meteorolgy is so inadequate. Yet the interest attached to its weather processes is in many ways unique. Not only is it at one of the poles of the earth, but it is at the pole of that hemisphere in which meteorological conditions are the simpler and which offers, perhaps, the best field for the study of the general circulation. It is obvious that we can get no complete picture of world meteorology so long as such a gap remains, and the conclusion is rapidly being forced upon meteorologists in all quarters of the globe that their local weather is a function of world conditions. From the few and scattered records available it is already clear that the differences between seasons are accentuated in the Antarctic. Consequently, if a long series of records from a few well-distributed stations were available much might be learned regarding the nature and causes of seasonal variations in the world generally. It is very much to be hoped that the scientific problems of the region will soon again be attacked by properly organized bodies with resources adequate for the purpose. And when this is done, one of the most important aims should be the establishment of permanent meteorolgical stations.

[1] Reprinted from Meteorological Magazine, London, April, 1930.
[2] Washington. Bulletin W., 2d edition, 1926.
[3] Read before Iowa Academy of Science, May 2, 1930.
[4] British Antarctic Expedition, 1910–1913. Meteorology, vol. 1, discussion by G. C. Simpson, D. Sc. F. R. S., Calcutta, 1919.
[5] British Antarctic Expedition, 1907–1909. Reports on the scientific investigations Meteorology, by Edward Kidson, D. Sc., Melbourne, 1930, p. 120.

The meteorology of the Antarctic, although some of the disturbing factors to be found elsewhere are wanting, is sure to be highly complicated and difficult to elucidate. I can see no grounds for believing, as many meteorologists and geographers appear to do, that a solution of world problems in meteorology would follow quickly from research in the Antarctic. It is unscientific, for instance, to promise that seasonal forecasting would be greatly simplified. It is thoroughly unsound, also, at the present state of our knowledge, to ascribe seasonal changes to the movements of Antarctic ice. An adequate account of the ice conditions in the region would be most difficult to procure. Furthermore, seasonal changes are of a world-wide nature, and the ice conditions are much more likely to be a result of them than an important factor in their cause. It is usual to call an area where seasonal variations are very marked a "center of action." The term is a bad one, since it should imply that the region is one where original causes are especially active. What it really does imply is that effects are especially large or for other reasons easily measured there. The region may play a very passive part in the production of the conditions which it so clearly records. One would expect this to be the case with the Antarctic. When, however, we come to deal with long-period climatic changes, it is obvious that a study of the great polar caps is of the utmost importance, since they have so great an influence in deciding the use to which the solar radiation which reaches the earth is put.

Copies of the publication are available on application to the Secretary of the Commonwealth Council for Scientific and Industrial Research, 314 Albert Street, East Melbourne; or the Official Secretary, Australia House, Strand, London, at the price of 8 shillings.—*A. J. H.*

Sea thermograph installed on "S. S. Munargo," New York to South America.—Most interesting surface-temperature profiles of the Gulf Stream, Antilles Current, North Equatorial Current, and South Equatorial Current are in prospect from the Negretti and Zambra sea water thermograph recently purchased by the Munson Line and installed by the United States Weather Bureau on the steamship *Munargo*. The *Munargo* sailed from New York June 14 for ports on the east coast of South America. After possibly a second trip, the *Munargo* will resume its regular route to Nassau, Habana, and Miami.

The cooperation of the Munson Line in the general project of obtaining temperature records in the western Atlantic [6] is largely due to the interest of Mr. J. A. Erickson, Assistant Manager, Ownership Operations. The installation was completed by Mr. Benjamin Parry, United States Weather Bureau, with the assistance of Chief Engineer Buckingham and his assistant Mr. Olson.

Records of sea temperature are being obtained also on the Canadian National steamships *Lady Drake* and *Lady Hawkins*, with thermographs installed originally on the steamships *Canadian Forester* and *Canadian Fisher*, in 1927. These ships run from Halifax to Bermuda, St. Kitts, and various other places in the West Indies, finally reaching Demerara and returning to Halifax by the same route. The temperatures of the Gulf Stream, the Antilles Current, and the Equatorial Current are thus obtained. Dr. A. G. Huntsman, Biological Board of Canada, is the responsible scientist.—*C. F. Brooks.*

Broadcasting cosmic data.—Beginning August 1, 1930, the broadcasting of cosmic data by Navy radio station NNA, Washington, began; the message being added to the usual weather report message transmitted to the French radio station FYL, Lafayette, at the time 19:00 zone plus 5 (4 p. m. Eastern Standard Time) frequency 16,060 kilocycles.

The letters URSI is the distinguishing sign at the beginning of the cosmic message. URSI are the ititials of the Union Radio Scientifique Internationale (International Scientific Radio Union). Each class of data is coded separately and preceded by an identifying word—SOL for solar constant, MAG for terrestrial magnetism, SUN for sun spots, AURO for auroras. The data are expressed in a number code in groups of five, similar to that used in the transmission of meteorological data. Plain English will be used when extraordinary phenom ena demand it. The message is signed SCIENSERVEC the cable address of Science Service. Further details may be had on application to Science Service, Twenty-first and B Streets, Washington, D. C.—*A. J. H.*

Ice in the region of the Grand Banks, 1929.—The editor is in receipt of the annual report on International Ice Patrol in the North Atlantic.[7]

This bulletin contains a detailed report of the two Coast Guard vessels which alternate in 15-day shifts in the patrol. The outstanding feature of the 1929 season was its length and the very great amount of ice that prevailed. During the last few days of July the patrol had the very unusual experience of witnessing the melting of the southernmost bergs under visual observation due to the midsummer air and water temperatures and the apparent mixture of the surrounding northern waters with the Gulf Stream drift.

Father José Algué, S. J. (1856–1930).—Born at Barcelona on December 28, 1856, José Algué began his studies at the Colegio de San Ignacio and early came under the influence of the Rev. Don José Faura, brother of the founder and first director of the Observatory of Manila in the Philippine Islands. His interest took a scientific turn, including mathematics, physics, and chemistry, and in 1889 he was selected by the superiors of the Compañia de Jesús to collaborate in the work of the observatory. In 1891 he visited the United States to study astronomy and in 1893 he took an active part, on behalf of Spain and the Philippines, at the International Meteorological Congress which met at Chicago. After this Congress he returned to Spain, and thence proceeded to Manila as assistant director of the observatory under Father F. Faura.

The year 1894 was remarkable for an extraordinary number of typhoons, and Father Algué immediately commenced the study which became his chief work. His first essay appeared in 1895, followed in 1897 by "Baguios o ciclones filipinos" and "El Barociclonómetro." The same year, on the death of Father Faura, he became director of the observatory. In 1904 followed his famous monograph "Cyclones of the Far East," indispensable for all subsequent studies of the phenomena of tropical cyclones. This work was written in English but has been translated into several other languages. Other meteorological work was not neglected, however; as early as 1898 he published a paper on "The clouds of the Philippine Archipelago." The network of stations and the meteorological service of the Philippines was continually expanded, including the erection in 1907 of the high-level observatory of Mirador, at a height of 1,512 meters, and Father Algué was a regular attendant at the International Meteorological Conferences. In 1906 he was elected an honorary member of the Royal Meteorological Society, and he has made three contributions to the pages of the Quarterly Journal. In 1924 he again visited Europe to organize the Philippine exhibit at the Vatican missionary exhibition of 1925, and then ill health made it impossible for him to return to Manila. He died at Roquetas on May 27, 1930.[8]

[6] Charles F. Brooks; The Gulf Stream; General Meterological Project. Monthly Weather Review, March, 1930, 58:103-106.

[7] United States Treasury Department, Coast Guard Bulletin 18, International Ice Observations and Ice Patrol Service in the North Atlantic Ocean, Season of 1929. Government Printing Office, 1930.

[8] Reprinted from the Meteorological Magazine, London, August, 1930, pp. 169-170.